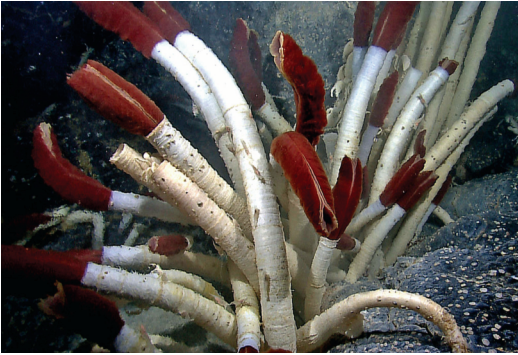


VIR SINGH

BIODIVERSITY CONCEPTS, CRISES, AND CONSERVATION



BIODIVERSITY



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About the Author



Prof. Vir Singh, Ph.D., is an Emeritus Professor of Environmental Science at GB Pant University of Agriculture & Technology, India. He has more than three decades experience in teaching, research, extension, project execution, and research supervision. He has also worked as Coordinator of Liberal Education, Director of Communication, Editor-in-Chief of two monthly magazines published by the university, and Nodal Officer of Disaster Management for the Uttarakhand Government, India. He has been educated and trained in many universities and institutes in India and has also

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Prof. Vir Singh has published 54 books, many monographs, a lab manual, and more than 250 research papers, book chapters, and popular articles. In his book *Fertilizing the Universe* (Cambridge Scholars, 2019), he proposes a theory of astrobiological evolution. His textbook on *Environmental Plant Physiology* (Taylor and Francis, CRC Press, 2020) brings to the fore a botanical strategy for a climate-smart planet. He is also a Climate Reality Leader committed to creating awareness about the ongoing climate change and its long-term implications on every walk of life. He is also actively engaged in environmental writing. His articles on vital contemporary issues are being widely published in English and Hindi dailies and e-magazines.

BIODIVERSITY

Concepts, Crises, and Conservation

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Preface

Biodiversity not just relates to a count of all the living species, intra-species, and all communities prevailing in the biosphere. Biodiversity also does not merely relate to the richness of life. Biodiversity is not just about its economic attributes. Biodiversity is also not just the spice of life. Biodiversity is the very reality of the mysterious journey of Evolution. Biodiversity prevailing in the biosphere is the most wonderful story of nature's Evolution. Biodiversity is the most pristine 'product' of Evolution. By evolving the diversity of various genotypes of a species, Evolution struck sustainability for all species. By ensuring the sustainability of the species, Evolution ensured the sustainability of all communities. Biodiversity is the glory of Evolution.

Can you imagine Evolution described without the biodiversity in its fold? Look at the very story of Evolution, and you will find it enriching the biosphere by constantly adding biodiversity to it. Our world is a wonderful outcome of biodiversity. Biological Evolution continued adding to newer and newer biological species and in due course of the phenomenon, the human species came into existence.

In the vast biosphere, none of the species can survive, exist, and sustain itself without other species. Interdependence, not independence, is the very essence of the survival, existence, and sustenance of the species. The greater the degree of interdependence the higher the degree of sustainability of the species and the ecosystems they inhabit. Interdependence is the essence of all existence and this phenomenon itself emanates from biodiversity. "Responsibility for life at large obliges us to support diversity, for diversity is not only the spice of life, but it is also a precondition of a vibrant and healthy life," says eco-philosopher Henryk Skolimowski, "moreover, a precondition of the meaningfulness and richness of our individual lives."

The book in your hands sings the glory of biodiversity on planet Earth. Written in a perfect professional tone with an added flavor of emerging concepts that highlight the growing need for biodiversity protection, conservation, and enhancement, the book attempts to make huge promises for the students, scholars, researchers, teachers, and development proponents to articulate the

subject matter in their own ways. The human world now deeply understands that their socioeconomic needs can be fulfilled on a sustained basis only when biodiversity blossoms with fullness on the Living Planet. “The Earth’s genes, species, and ecosystems are the product of over 3000 million years of evolution, and are the basis for the survival of our own species,” says Jeffrey A. McNeely, a biodiversity scholar.

Planet Earth is caught in a variety of crises, and all crises are rooted in biodiversity crises. Biodiversity erosion, principally at the hands of the human species, is one of the worst ever crises. Global warming eventually leads to climate change as a result of biodiversity erosion. Biodiversity is responsible for all three phenomena of life, viz, N_2 fixation, photosynthesis, and chemosynthesis. Conservation of biodiversity throughout the length and width of the globe will be phenomenal for restoring our dying planet, averting global warming, and mitigating climate change.

Nature’s resilience and sustainability of ecosystems, and socioeconomic systems are the phenomena that emanate from biodiversity. A sustainable future can also be created on a rich foundation of nature’s biodiversity.

Biodiversity: Concepts, Crises, and Conservation offers professional subject content with fresh achievements in this field. Biodiversity in the literature on the subject available so far does not put much emphasis on biodiversity-sustainability links. The present book highlights, examines, and magnificently explains these vital linkages. Thus, the book opens many windows to a new world of knowledge illuminating new ecological paths toward sustainability that green our hope for ushering in a healthy, vibrant, sustainable, and happy future.

I am so happy to add that the matter on various implicit and explicit aspects, perspectives, and issues synthesized and articulated in this book has been possible due to a happy, stimulating, exuberantly creative, and joyful environment in Canada, especially in Oakville and Toronto of the Ontario province created by my wife Gita, daughter Silvi, son Pravesh, son-in-law Nic, and granddaughter Avery.

I hope the book splendidly and ecstatically fulfills the academic promises it absorbs and assimilates in its professionally enriching subject content.

Vir Singh

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BIODIVERSITY CONCEPTS, CRISES, AND CONSERVATION

The variety of life the Planet Earth flowers with is a wonderful culmination of natural evolution. All natural ecosystems and cultivated lands blossoming with biodiversity set out the preconditions for a healthy, vibrant, and sustainable biosphere. Authored by an eminent academician, expert, and celebrated author, the book on Biodiversity: Concepts, Crises and Conservation embraces all dimensions of the biological diversity we need to conceive, understand, recognize, discover, and practically protect, conserve, and augment for posterity, sustainability, and happiness. Emerging concepts, ongoing crises, and potential conservation tactics of biodiversity have been ecstatically explained. The book is composed in a textbook flavor setting out mental agility exercises for students belonging to multiple disciplines and comes out with renewed, enriched, and innovation-disrupting academic content. Apart from the students and their teachers in the life sciences/ biological sciences, environmental sciences, agricultural sciences, geography, and natural resource management streams, the book will also serve as a useful guide for planners, policy-makers, environmental activists, government, and non-government organizations.

FEATURES

- Provides diverse concepts, crises, and conservation strategies
- Elaborates on a wide range of biodiversity values
- Presents magnificent scenarios of agrobiodiversity (biodiversity in agriculture), pedobiodiversity (biodiversity in soils), biodiversity in the chemosynthesis-based communities
- Examines biodiversity-climate links
- Discusses the vital biodiversity-sustainability relationships
- Elucidates biodiversity-based sustainability principles and operationalization techniques

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